

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

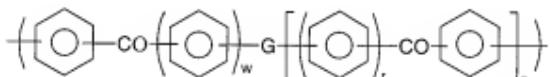
1-68 (cancelled).

69 (previously presented). A device selected from a fuel cell incorporating a polymer electrolyte membrane, an electrolyser incorporating a polymer electrolyte membrane and a gas diffusion electrode, wherein said polymer electrolyte membrane or said gas diffusion electrode includes a polymer having a moiety of formula



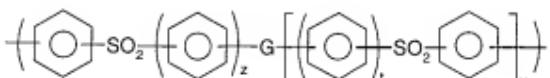
I

and/or a moiety of formula



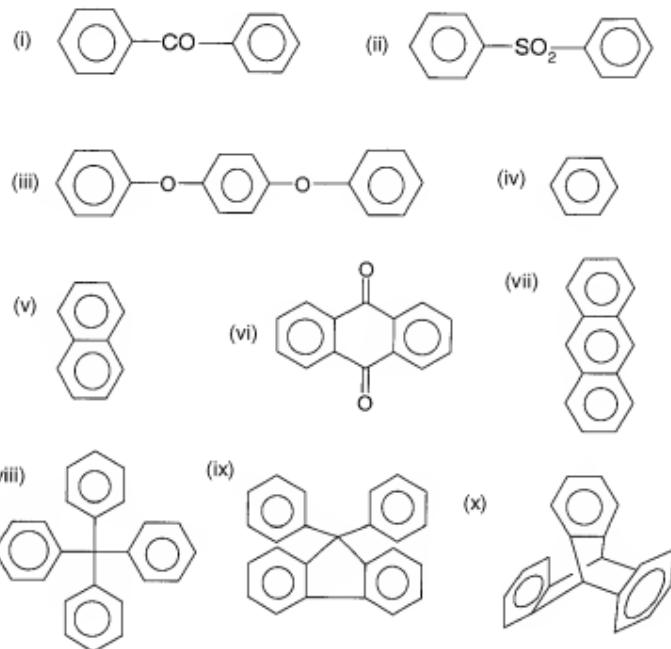
II

and/or a moiety of formula



III

wherein at least some of the units I, II, and/or III are sulphonated; wherein the phenyl moieties in units I, II and III are independently optionally substituted and optionally cross-linked; and wherein m,r,s,t,v,w and z independently represent zero or a positive integer, E and E' independently represent an oxygen or a sulphur atom or a direct link, G represents an oxygen or a sulphur atom, a direct link or a -O-Ph-O- moiety where Ph represents a phenyl group and Ar is selected from one of the following moieties (i) to (x) which is bonded via one or more of its phenyl moieties to adjacent moieties, wherein said polymer includes at least some ketone moieties in the polymeric chain and wherein said polymer includes a multi-phenylene moiety bonded to two oxygen atoms or a fused ring aromatic moiety bonded to two oxygen atoms:



70 (previously presented). A device selected from a fuel cell incorporating a polymer electrolyte membrane, an electrolyser incorporating a polymer electrolyte membrane and a gas diffusion electrode, wherein said polymer electrolyte membrane or said gas diffusion electrode includes a polymer having a moiety of formula



and/or a moiety of formula

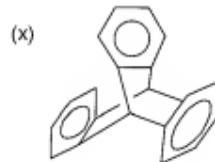
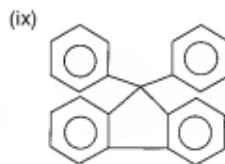
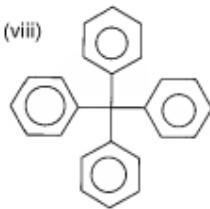
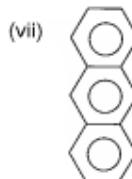
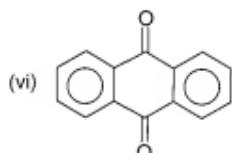
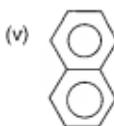
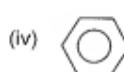
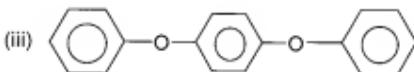
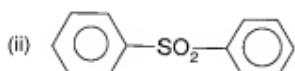
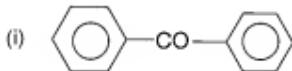


and/or a moiety of formula

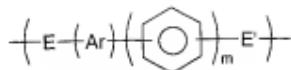


wherein at least some of the units I, II, and/or III are functionalised to provide ion exchange sites; wherein the phenyl moieties in units I, II and III are independently optionally substituted and optionally cross-linked; and wherein  $m, r, s, t, v, w$  and  $z$  independently represent zero or a positive integer,  $E$  and  $E'$  independently represent an oxygen or a sulphur atom or a direct link,  $G$  represents an oxygen or a sulphur atom, a direct link or a  $-O-Ph-O-$  moiety where  $Ph$  represents a phenyl group and  $Ar$  is selected from one of the following moieties (i) to (x) which is bonded via one or more of its phenyl moieties to adjacent moieties, wherein said polymer includes at least some ketone moieties in the polymeric chain and wherein said polymer includes a multi-phenylene

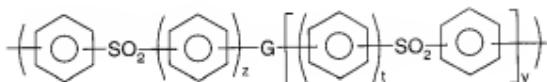
moiety bonded to two oxygen atoms or a fused ring aromatic moiety bonded to two oxygen atoms;



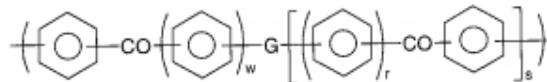
71 (previously presented). A device selected from a fuel cell incorporating a polymer electrolyte membrane, an electrolyser incorporating a polymer electrolyte membrane and a gas diffusion electrode, wherein said polymer electrolyte membrane or said gas diffusion electrode includes a polymer having a moiety of formula



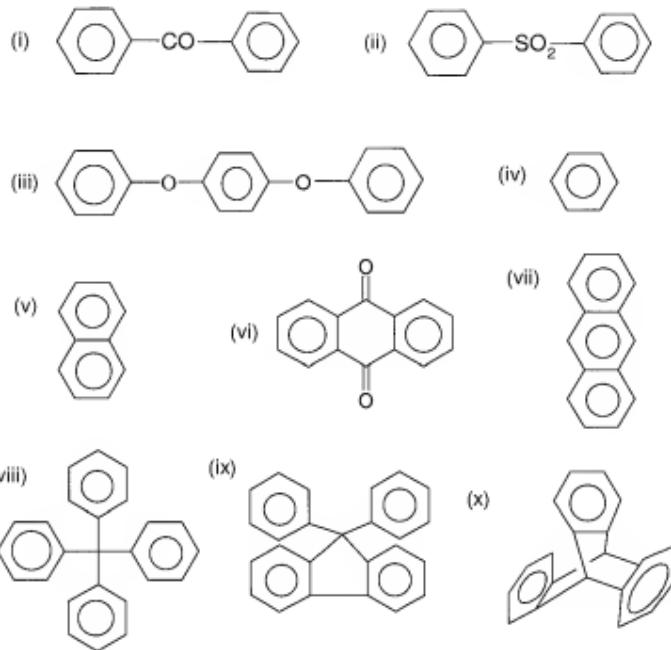
and/or a moiety of formula



and/or a moiety of formula



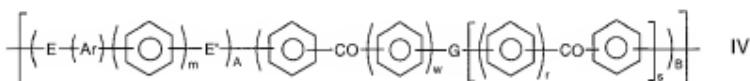
wherein at least some of the units I, II, and/or III are functionalised to provide ion exchange sites; wherein the phenyl moieties in units I, II and III are independently optionally substituted and optionally cross-linked; and wherein  $m, r, s, t, v, w$  and  $z$  independently represent zero or a positive integer,  $E$  and  $E'$  independently represent an oxygen or a sulphur atom or a direct link,  $G$  represents an oxygen or a sulphur atom, a direct link or a  $-O-Ph-O-$  moiety where  $Ph$  represents a phenyl group and  $Ar$  is selected from one of the following moieties (i) to (x) which is bonded via one or more of its phenyl moieties to adjacent moieties, wherein said polymer is crystalline:



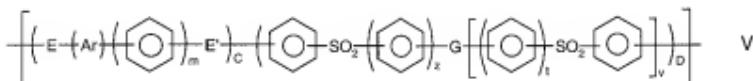
72 (previously presented). A device according to claim 69, wherein "a" represents the mole % of units of formula I in said polymer; "b" represents the mole % of units of formula II in said polymer; and "c" represents the mole % of units of formula III in said polymer and wherein a is in the range 45-55 and the sum of b and c is in the range of 45-55.

73 (previously presented). A device according to claim 69, wherein said polymer consists essentially of moieties I, II and/or III.

74 (previously presented). A device according to claim 69, wherein said polymer is a random or block copolymer having a first repeat unit of general formula



or of general formula



and a second repeat unit of general formula IV or V,

wherein A, B, C and D independently represent 0 or 1.

75 (previously presented). A device according to claim 74, wherein said polymer includes at least one repeat unit of formula IV.

76 (previously presented). A device according to claim 74, wherein said polymer is a copolymer comprising a first repeat unit of formula IV wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m represents 1, w represents 1, s represents zero, A and B represent 1; and

a second repeat unit of formula V wherein E and E' represent oxygen atoms, Ar represents a structure (i), m represents 0, C represents 1, z represents 1, G represents a direct link, v represents 0 and D represents 1.

77 (previously presented). A device according to claim 74, wherein said polymer is a copolymer comprising a first repeat unit of formula IV, wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m represents 1, w represents 1, s represents 0, A and B represent 1.

78 (previously presented). A device according to claim 74, wherein said polymer is a copolymer comprising a first repeat unit of formula IV wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m represents 1, w represents 1, s represents 0, A and B represent 1; and a second repeat unit of formula IV wherein E represents an oxygen atom, E' represents a direct link, Ar represents a moiety of structure (i), m represents zero, A represents 1, B represents 0.

79 (previously presented). A device according to claim 74, wherein said polymer is a copolymer comprising a first repeat unit which is either:

(a') of formula IV wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m and s represent zero, w represents 1 and A and B represent 1; or

(b') of formula IV wherein E represents an oxygen atom, E' represents a direct link, Ar represents a moiety of structure (i), m represents zero, A represents 1, B represents zero;

and a second repeat unit which is either:

(c') of formula IV wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m represents 1, w represents 1, s represents zero, A and B represent 1; or

(d') of formula IV wherein E represents an oxygen atom, E' is a direct link, G represents a direct link, Ar represents a moiety of structure (iv), m and s represent zero, w represents 1, A and B represent 1.

80 (previously presented). A device according to claim 74, wherein said polymer has a repeat unit selected from

(a') of formula IV wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m and s represent zero, w represents 1 and A and B represent 1; or

(b') of formula IV wherein E represents an oxygen atom, E' represents a direct link, Ar represents a moiety of structure (i), m represents zero, A represents 1, B represents zero;

in combination with a repeat unit of formula IV wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m represents 1, w represents 1, s represents zero, A and B represent 1.

81 (previously presented). A device according to claim 74, comprising a first repeat unit which is selected from the following:

(a) a unit of formula IV wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m and s represent zero, w represents 1 and A and B represent 1;

(b) a unit of formula IV wherein E represents an oxygen atom, E' represents a direct link, Ar represents a moiety of structure (i), m represents zero, A represents 1, B represents zero;

(c) a unit of formula V wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m and v represent zero, z represents 1 and C and D represent 1;

(d) a unit of formula V wherein E represents an oxygen atom, E' represents a direct link, Ar represents a moiety of structure (ii), m represents 0, C represents 1, D represents 0; or

(e) a unit of formula V wherein E and E' represents an oxygen atom, Ar represents a structure (i), m represents 0, C represents 1, Z represents 1, G represents a direct link, v represents O and D represents 1;

and a second repeat unit which is selected from the following:

(f) a unit of formula IV wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m represents 1, w represents 1, s represents zero, A and B represent 1;

(g) a unit of formula IV wherein E represents an oxygen atom, E' is a direct link, G represents a direct link, Ar represents a moiety of structure (iv), m and s represent zero, w represent 1, A and B represent 1;

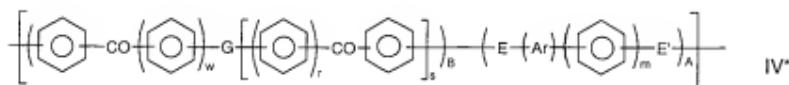
(h) a unit of formula V wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m represents 1, z represents 1, v represents 0, C and D represent 1; and

(i) a unit of formula V wherein E represents an oxygen atom, E' represents a direct link, G represents a direct link, Ar represents a moiety of structure (iv), m and v represent zero, z represents 1, C and D represent 1.

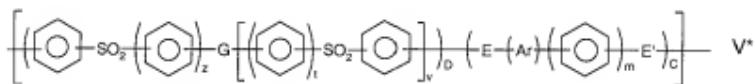
82 (previously presented). A device according to claim 74, wherein said second unit is selected from a unit of formula IV wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (v), m represents 0, w represents 1, s represents 0, A and B represent 1; or a unit of formula V wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (v), m represents 0, z represents 1, v represents 0, c and d represent 1.

83 (previously presented). A device according to claim 80, wherein said copolymer has a first repeat unit selected from units (b), (d) or (e) in combination with a second repeat unit selected from units (f) or (h).

84 (previously presented). A device according to claim 69, wherein said polymer is a copolymer having a first repeat unit of general formula



or of general formula



and a second repeat unit of general formula IV\* or V\*, wherein A, B, C and D independently represent 0 or 1.

85 (previously presented). A device according to claim 84, wherein said polymer includes: a repeat unit of formula IV\* wherein Ar represents a moiety of structure (v), E represents a direct link, E' represents an oxygen atom, G represents a direct link, w, s and m represent 0, A and B represent 1; and/or a repeat unit of formula V\* wherein Ar represents a moiety of structure (v), E represents a direct link, E' represents an oxygen atom, G represents a direct link, z, v and m represent 0, C and D represent 1.

86 (previously presented). A device according to claim 85, which includes a repeat unit of formula IV\* or V\* and a unit selected from the following:

(a) a unit of formula IV wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m and s represent zero, w represents 1 and A and B represent 1;

(b) a unit of formula IV wherein E represents an oxygen atom, E' represents a direct link, Ar represents a moiety of structure (i), m represents zero, A represents 1, B represents zero;

(c) a unit of formula V wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m and v represent zero, z represents 1 and C and D represent 1;

(d) a unit of formula V wherein E represents an oxygen atom, E' represents a direct link, Ar represents a moiety of structure (ii), m represents 0, C represents 1, D represents 0;

(e) a unit of formula V wherein E and E' represents an oxygen atom, Ar represents a structure (i), m represents 0, C represents 1, Z represents 1, G represents a direct link, v represents O and D represents 1;

(f) a unit of formula IV wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m represents 1, w represents 1, s represents zero, A and B represent 1;

(g) a unit of formula IV wherein E represents an oxygen atom, E' is a direct link, G represents a direct link, Ar represents a moiety of structure (iv), m and s represent zero, w represent 1, A and B represent 1;

(h) a unit of formula V wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m represents 1, z represents 1, v represents 0, C and D represent 1; and

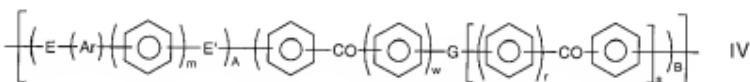
(i) a unit of formula V wherein E represents an oxygen atom, E' represents a direct link, G represents a direct link, Ar represents a moiety of structure (iv), m and v represent zero, z represents 1, C and D represent 1.

87 (previously presented). A device according to claim 69, wherein Ar is selected from moieties (i), (ii), (iv) and (v).

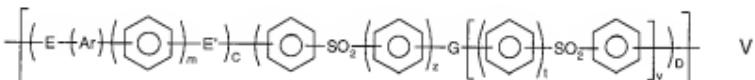
88 (previously presented). A device according to claim 69, wherein said polymer includes a -O-biphenylene-O- moiety or a -O-naphthalene-O-moiety.

89 (previously presented). A device according to claim 71, wherein said polymer includes at least some ketone moieties.

90 (previously presented). A device according to claim 71, wherein said polymer is a random or block copolymer having a first repeat unit of general formula



or of general formula



and a second repeat unit of general formula IV or V,

wherein A, B, C and D independently represent 0 or 1.

91 (previously presented). A device according to claim 69, wherein said polymer has a glass transition temperature (Tg) of at least 144°C.

92 (previously presented). A device according to claim 69, wherein said glass transition temperature is at least 154°C.

93 (previously presented). A device according to claim 69, wherein said polymer has an inherent viscosity of at least 0.3.

94 (previously presented). A device according to claim 69, wherein said device is a fuel cell.

95 (previously presented). A device selected from a fuel cell incorporating a polymer electrolyte membrane, an electrolyser incorporating a polymer electrolyte membrane and a gas diffusion electrode, wherein said polymer electrolyte membrane or said gas diffusion electrode includes a polymer which includes at least some ketone moieties in the polymeric chain and includes a multi-phenylene moiety bonded to two oxygen atoms or a fused ring aromatic moiety bonded to two oxygen atoms, said polymer being made in a process comprising:

(a) polycondensing a compound of general formula



with itself wherein  $Y^1$  represents a halogen atom or a group -EH and  $Y^2$  represents a halogen atom or, if  $Y^1$  represents a halogen atom,  $Y^2$  represents a group E'H; or

(b) polycondensing a compound of general formula



with a compound of formula



and/or with a compound of formula



wherein  $Y^1$  represents a halogen atom or a group -EH (or -E'H if appropriate) and  $Y^2$  represents a halogen atom or a group -E'H and  $X^2$  represents the other one of a halogen atom or a group -E'H (or EH of appropriate); and

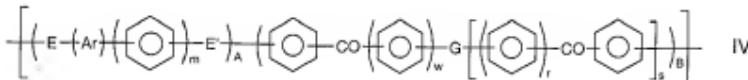
(c) optionally copolymerizing a product of a process as described in paragraph (a) with a product of a process as described in paragraph (b);

wherein the phenyl moieties of units VI, VII and/or VIII are optionally substituted; the compounds VI, VII and/or VIII are optionally sulphonated; and Ar, m, w, r, s, z, t, v, G, E and E' are as described in claim 69 except that E and E' do not represent a direct link; the process also optionally comprising sulphonating and/or cross-linking a product of the reaction described in paragraphs (a), (b) and/or (c) to prepare said polymer.

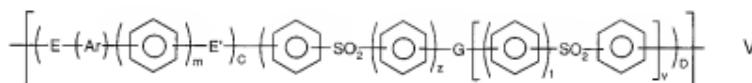
96 (previously presented). A process according to claim 95, wherein sulphonation is carried out in concentrated sulphuric acid at an elevated temperature.

97 (previously presented). A process according to claim 96, wherein said concentrated sulphuric acid comprises less than 98.5% w/w of said sulphuric acid.

98 (previously presented). A copolymer having a first unit of general formula



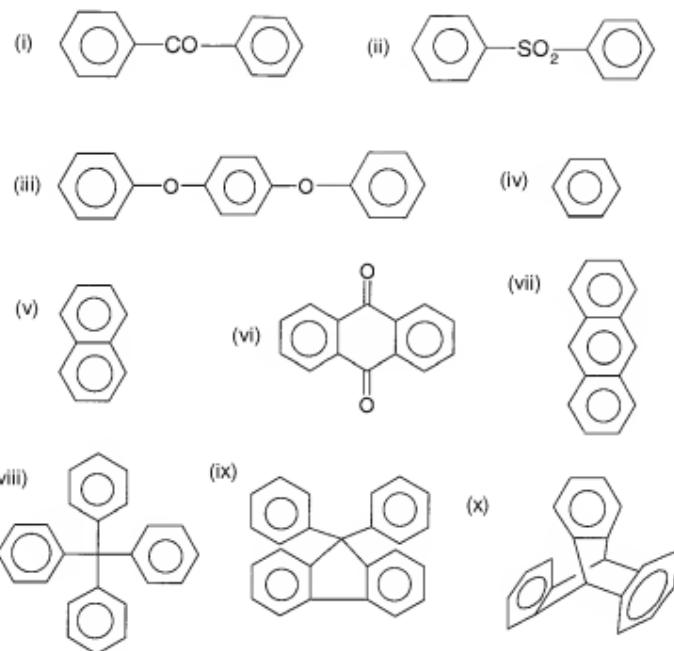
or of general formula



and a second unit of general formula IV or V,

wherein A, B, C and D independently represent 0 or 1;

wherein at least some of units IV and V are functionalised to provide ion-exchange sites; wherein phenyl moieties in IV and V are independently optionally-substituted and optionally cross-linked; wherein m, r, s, t, v w and z independently represent zero or a positive integer, E and E' independently represent an oxygen or a sulphur atom or a direct link, G represents an oxygen or a sulphur atom, a direct link or a  $-O-Ph-O-$  moiety wherein Ph represents a phenyl groups and Ar is selected from one of the following moieties (i) to (x) which is bonded via one or more of its phenyl moieties to adjacent moieties, wherein said copolymer includes at least some ketone moieties in the polymeric chain and wherein said polymer includes a multi-phenylene moiety bonded to two oxygen atoms or a fused ring aromatic moiety bonded to two oxygen atoms:



99 (previously presented). A copolymer according to claim 98, wherein at least some of units IV and V are sulphonated.

100 (previously presented). A copolymer according to claim 97, wherein said copolymer includes a first repeat unit of formula IV, wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m represents 1, w represents 1, s represents 0, A and B represent 1.

101 (previously presented). A copolymer according to claim 97, wherein said copolymer includes a second unit selected from a unit of formula IV wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (v), m represents 0, w represents 1, s represents 0, A and B represent 1; and a unit of formula V wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (v), m represents 0, z represents 1, v represents 0, c and d represent 1.

102 (previously presented). A copolymer according to claim 97, wherein said copolymer includes a first repeat unit of formula IV wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m represents 1, w represents 1, s represents zero, A and B represent 1; and

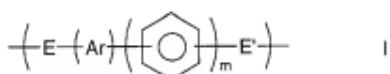
a second repeat unit of formula V wherein E and E' represent oxygen atoms, Ar represents a structure (i), m represents 0, C represents 1, z represents 1, G represents a direct link, v represents 0 and D represents 1.

103 (previously presented). A copolymer according to claim 97, wherein said copolymer includes a first repeat unit of formula IV wherein E and E' represent oxygen atoms, G represents a direct link, Ar represents a moiety of structure (iv), m represents 1, w represents 1, s represents 0, A and B represent 1; and a second repeat unit of formula IV wherein E represents an oxygen atom, E' represents a direct link, Ar represents a moiety of structure (i), m represents zero, A represents 1, B represents 0.

104 (previously presented). A copolymer according to any of claims 99 to 102, wherein at least some of units IV and V are sulphonated.

105 (previously presented). A device according to claim 69 or claim 70, wherein said polymer is crystalline.

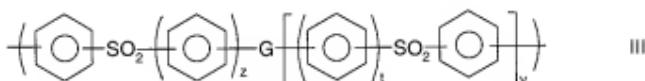
106 (currently amended). A polymer electrolyte membrane which includes a polymer having a moiety of formula:



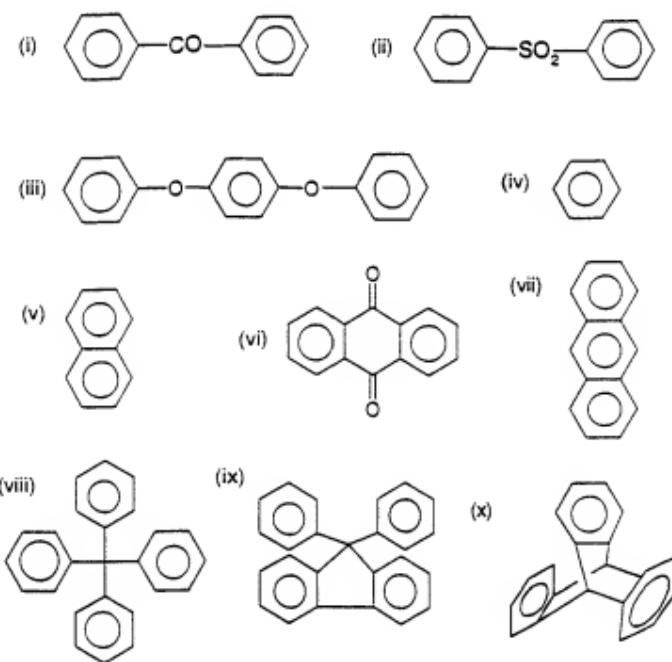
and/or a moiety of formula



and/or a moiety of formula



wherein at least some of the units I, II, and/or III are sulphonated; wherein the phenyl moieties in units I, II and III are independently optionally substituted and optionally cross-linked; and wherein  $m, r, s, t, v, w$  and  $z$  independently represent zero or a positive integer,  $E$  and  $E'$  independently represent an oxygen or a sulphur atom or a direct link,  $G$  represents an oxygen or a sulphur atom, a direct link or a  $-\text{O}-\text{Ph}-\text{O}-$  moiety where  $\text{Ph}$  represents a phenyl group and  $\text{Ar}$  is selected from one of the following moieties (i) to (x)



wherein said polymer includes a multi-phenylene moiety bonded to two oxygen atoms or a fused ring aromatic moiety bonded to two oxygen atoms which is bonded via one or more of its phenyl moieties to adjacent moieties, wherein said polymer includes at least some ketone moieties in the polymeric chain and wherein said polymer includes a multi-phenylene moiety bonded to two oxygen atoms or a fused ring aromatic moiety bonded to two oxygen atoms.